IN THE SPECIFICATION

Please amend the paragraphs of the specification as follows:

On page 2, please amend paragraph [0005] with the following paragaraph:

[0005]   Equalizers are generally complex, tending to increase the power consumption of a communication device. A need exists, therefore, for an equalizer design that reduces power consumption. Further, there is a need for controlling an equalizer so as to operate the equalizer during such channel conditions as result in optimum performance of the equalizer. Still further there is a need to implement an equalizer in parallel with a RAKE receiver, wherein the equalizer only operates during specified operating conditions.

On page 5, please amend paragraph [0022] with the following paragaraph:

[0022]   For a High Rate Packet [Date] Data (HRPD) system, such as specified by IS-856, a pilot reference is transmitted during a portion of the forward link transmission. Thus, decover element 132 decovers the despread samples with the particular channelization code (e.g., a Walsh code 0 for the HDR system) that was used to cover the pilot reference at the base station. The decovered pilot samples are then provided to an accumulator 134 and accumulated over a particular time interval to generate pilot symbols. The accumulation time interval can be the duration of the pilot channelization code, an entire pilot reference period, or some other time interval. The pilot symbols are then provided to a pilot filter 136 and used to generate pilot estimates that are provided to pilot demodulator 126. The pilot estimates are estimated or predicted pilot symbols for the time period when data is present.

On page 6, please amend paragraph [0025] with the following paragaraph:

[0025]   Searcher element 112 can be designed to include a PN despreader, a PN generator, and a signal quality measurement element. The PN generator generates the complex PN sequence at various time offsets, possibly as directed by a controller (not shown), which are used in the search for the strongest multipaths. For each time offset to be search searched, the PN despreader receives and despreads the I_{IN} and Q_{IN} samples with the complex PN sequence at the

particular time offset to provide despread samples. The signal quality of the despread samples is then estimated. This can be achieved by computing the energy of each despread sample (i.e., $I_{DES}^2 + Q_{DES}^2$) and accumulating the energy over a particular time period (e.g., the pilot reference period). Searcher element performs the search at numerous time offsets, and the multipaths having the highest signal quality measurements are selected. The available finger processors 110 are then assigned to process these multipaths.

On page 6, please amend paragraph [0028] with the following paragaraph:

[0028]   For each received signal, rake receiver 100 may be operated to process up to L multipaths, where l represents the number of available finger processors 110. Each of the [l] L multipaths corresponds to a particular time offset identified with the assistance of searcher element 112. A controller or searcher element 112 may be designed to maintain a list of the magnitude of the strongest multipath (α_{Ji}) and corresponding time offset (τ_i) for each of the k received signals being processed.

On page 8, please amend paragraph [0035] with the following paragaraph:

[0035]   FIG. 2A illustrates a portion of the components of a communication system 200. Other blocks and modules may be incorporated into a communication system in addition to those blocks illustrated. Bits produced by a source (not shown) are framed, encoded, and then mapped to symbols in a signaling constellation. The sequence of binary digits provided by the source is referred to as the information sequence. The information sequence is encoded by encoder 202 which outputs a bit sequence. The output of encoder 202 is provided to mapping unit 204, which serves as the interface to the communication channel. The mapping unit [104] 204 the encoder output sequence into symbols *y(n)* in a complex valued signaling constellation. Further transmit processing, including modulation blocks, as well as the communication channel and analog receiver processing, are modeled by section 220.

On page 9, please amend paragraph [0038] with the following paragaraph:

[0038] Continuing with FIG. [2B] 2A, at the receiver, the analog waveform is down-converted, filtered and sampled, such as at a suitable multiple of the Nyquist rate. The resulting samples are processed by the equalizer 210, which corrects for signal distortions and other noise and interference introduced by the channel, as modeled by section 220. The equalizer 210 outputs estimates of the transmitted symbols [$y(n)$] $\hat{y}(n)$. The symbol estimates are then processed by a decoder 212 to determine the original information bits, i.e., the source bits that are the input to encoder 202.

On page 9, please amend paragraph [0039] with the following paragaraph:

[0039] The combination of a pulse-filter, an I-Q modulator, the channel, and an analog processor in the receiver's front-end, illustrated in FIG. 2A and FIG. 2B, is modeled by a linear filter 206 having an impulse response $\{h_k\}$ and a z-transform $H(z)$, wherein the interference and noise introduced by the channel are modeled as Additive White Gaussian Noise (AWGN), and coupled to multiplier 208.

On page 9, please amend paragraph [0040] with the following paragaraph:

[0040] FIG. 2B details processing section 220 as including a front end processing unit 222 coupled to baseband filters 226 and 228 for processing the In-phase (I) and Quadrature (Q) components, respectively. Each baseband filter 226, 228 is then coupled to a multiplier (230, 232) for multiplication with a respective carrier. The resultant waveforms are then summed at summing node 234 and transmitted over the communication channel to the receiver. At the receiver, an analog pre-processing unit 242 receives the transmitted signal, which is processed and passed to a matched filter 244. The output of the matched filter 244 is then provided to an Analog/Digital (A/D) converter 246. Note that other modules may be implemented according to design and operational criteria. The components and elements of FIG. 2A and 2B are provided for an understanding of the following discussion and are not intended to be a complete description of a communication system.

On page 11, please amend paragraph [0044] with the following paragaraph:

[0044] Within receive data processor 310, the streams of samples from pre-processors (not shown) are provided to each of equalizer 312 and RAKE 316. Each stream of samples is generated from a respective received signal, <u>wherein the received signal is routed from antennas 302 to receiver 304</u>. Equalizer 312 performs equalization on the received streams of samples and provides symbol estimates to post processor 314. Depending on the processing performed at transmission, post processor 314 may further process the symbol estimates to provide recovered symbols. In particular, if PN spreading and covering are performed at the transmitter unit, post processor 314 may be configured to perform despreading with a complex PN sequence and decovering with one or more channelization codes. Phase rotation (which is achieved via pilot demodulation for a rake receiver) is implicitly achieved by equalizer 312 after the filter coefficients have been adopted.

On page 14, please amend paragraph [0059] with the following paragaraph:

[0059] The equalizer may more effectively reduce ISI due to frequency distortion. This is achieved by providing a response that is approximately the inverse of the frequency distortion while attempting to minimize the overall noise, which includes the ISI. The equalizer thus "inverts" the channel and also attempts to smooth out the effect of multipath. In fact, each filter [[410]], when the coefficients are initialized to {0,..., 0, 1, 0,..., 0}, is equivalent to one finger processor. Subsequently, as the zero-valued coefficients are adapted, the filter frequency response is altered to equalize the channel distortion. Thus, the equalizer may be used to effectively deal with both multipath-induced ISI and channel-induced ISI.

On page 16, please amend paragraph [0065] with the following paragaraph:

[0065] FIG. 5 is a state diagram illustrating operation 500 of a receiver according to one embodiment implementing a RAKE and hybrid equalizer. Two modes are implemented: RAKE only mode 502; and RAKE and hybrid equalizer mode 504. Operation starts in the RAKE only mode. While in mode 502, operation is maintained in mode 502 until there is a change in operating conditions sufficient to indicate performance increases would be achieved with addition of the equalizer. To determine if operating conditions have changed sufficiently, such as a slowly varying channel condition, a channel quality metric is evaluated. In the present

embodiment, the channel quality metric is the Signal to Interference and Noise Ratio (SINR) of the RAKE output (SINR$_{RAKE}$) is measured and compared to a threshold value (T$_{EQU}$) for triggering the equalizer. Similarly, a correction metric (C$_{RAKE}$) is determined for the RAKE and compared to a corresponding correction metric (C$_{EQU}$) for the equalizer. When SINR$_{RAKE}$ is greater than T$_{EQU}$, and C$_{RAKE}$ is greater than C$_{EQU}$[)] then operation transitions to a RAKE and equalizer mode 504. In this way, when operating conditions encourage use of the equalizer, mode 504 is entered and the equalizer operation begins.

On page 17, please amend paragraph [0067] with the following paragaraph:

[0067]   As an example, consider the cross correlation metric as follows. Given a pilot symbol, [P$_{□}$] $\underline{P\mu}$, the correlation between successive pilot symbols may be estimated as:

$$C_{RAKE} = \left| \frac{\sum_{k=1}^{N_{SUM}} P_{\mu} P_{k+1}^{*}}{\sum_{\mu=1}^{N_{SUM}} P_{\mu} P_{\mu}^{*}} \right| \qquad \text{Eq. (6)}$$

by averaging over N$_{SUM}$ pilot symbols. The correlation metric ranges from 0 to 1. Correlation of 1 implies a strong correlation and is likely to yield good equalizer performance, as the channel is not changing between successive pilot symbols.

On page 19, please amend paragraph [0074] with the following paragaraph:

[0074]   A receiver in an exemplary HDR communications system employing a variable rate data request scheme is shown in FIG. 4. The receiver 400 is a subscriber station in communication with a land-based data network by transmitting data on a reverse link to a base station (not shown). The base station receives the data and routes the data through a base station controller (BSC) (also not shown) to the land-based network. Conversely, communications to the subscriber station 400 may be routed from the land-based network to the base station via the BSC and transmitted from the base station to the subscriber unit [150] on [a] the forward link. The forward link refers to the transmission from the base station to the subscriber station and the reverse link refers to the transmission from the subscriber station to the base station.